

I Claim:

1. A method for operating an enhancement mode p-channel memory cell, comprising:
 - applying a potential of less than 3.0 Volts across a floating gate oxide, wherein the floating gate oxide is less than 50 Angstroms, in order to add or remove a charge from a floating gate; and
 - reading the p-channel memory cell by applying a potential to a control gate of the p-channel memory cell of less than 1.0 Volt.
2. The method of claim 1, wherein applying a potential of less than 3.0 Volts across a floating gate oxide, wherein the floating gate oxide is less than 50 Angstroms, in order to add or remove a charge from a floating gate includes applying the potential for less than 20 microseconds.
3. The method of claim 1, wherein the method further includes refreshing the p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals.
4. The method of claim 3, wherein refreshing the p-channel memory cell to renew a charge on the floating gate at second 1.0 intervals includes renewing a charge of approximately 100 electrons on the floating gate.
5. A method for operating an enhancement mode p-channel memory cell, comprising:
 - applying a potential of approximately 2.3 Volts across a floating gate oxide, wherein the floating gate oxide is approximately 23 Angstroms, in order to add or remove a charge from a floating gate; and
 - reading the p-channel memory cell by applying a potential to a control gate of the p-channel memory cell of less than 1.0 Volt.

6. The method of claim 5, wherein applying a potential of approximately 2.3 Volts across a floating gate oxide, wherein the floating gate oxide is approximately 23 Angstroms, in order to add or remove a charge from a floating gate includes applying the potential for less than 200 nanoseconds.

7. The method of claim 5, wherein the method further includes refreshing the p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals.

8. The method of claim 5, wherein refreshing the p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals includes renewing a charge of approximately 100 electrons on the floating gate.

9. A method for operating an enhancement mode p-channel memory cell, comprising:

applying a potential of approximately 3.0 Volts across a floating gate oxide, wherein the floating gate oxide is approximately 30 Angstroms, in order to add or remove a charge from a floating gate.

10. The method of claim 9, wherein applying a potential of approximately 3.0 Volts across a floating gate oxide, wherein the floating gate oxide is approximately 30 Angstroms, in order to add or remove a charge from a floating gate includes applying the potential for about 20 microseconds.

11. A method for operating an enhancement mode p-channel memory cell, comprising:

pulsing to a negative potential a control gate to drive a floating gate to a negative potential, wherein the floating gate controls a potential across a floating gate oxide, wherein the floating gate oxide is less than 50 Angstroms, in order to remove a charge from the floating gate.

12. The method of claim 11, wherein pulsing to a negative potential a control gate to drive a floating gate to a negative potential comprises pulsing the control gate to a negative potential to avoid charge buildup in the floating gate oxide.

13. A method for operating an enhancement mode p-channel memory cell, comprising:
applying a potential of less than 3.0 Volts across a floating gate oxide, wherein the floating gate oxide is less than 50 Angstroms, in order to add or remove a charge from a floating gate.

14. The method of claim 13, further including refreshing the p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals.

15. The method of claim 14, wherein refreshing the p-channel memory cell to renew a charge on the floating gate at second 1.0 intervals includes renewing a charge of approximately 100 electrons on the floating gate.

16. A method for operating an enhancement mode p-channel memory cell, comprising:
applying a potential of approximately 2.3 Volts across a floating gate oxide, wherein the floating gate oxide is approximately 23 Angstroms, in order to add or remove a charge from a floating gate.

17. The method of claim 16, further including refreshing the p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals.

18. The method of claim 17, wherein refreshing the p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals includes renewing a charge of approximately 100 electrons on the floating gate.

19. A method for operating an enhancement mode p-channel memory cell, comprising:
 - applying a potential of less than 3.0 Volts across a floating gate oxide for less than 20 microseconds, wherein the floating gate oxide is less than 50 Angstroms, in order to add or remove a charge from a floating gate.
20. The method of claim 19, further including refreshing the p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals.
21. A method for operating an enhancement mode p-channel memory cell, comprising:
 - applying a potential of approximately 2.3 Volts across a floating gate oxide for less than 200 nanoseconds, wherein the floating gate oxide is approximately 23 Angstroms, in order to add or remove a charge from a floating gate.
22. The method of claim 21, further including refreshing the p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals.
23. A method of operating a memory device having a plurality of enhancement mode p-channel memory cells comprising:
 - applying a potential of less than 3.0 Volts across a floating gate oxide of at least one enhancement mode p-channel memory cell of the plurality of enhancement mode p-channel memory cells, wherein the floating gate oxide is less than 50 Angstroms, in order to add or remove a charge from a floating gate; and
 - reading the enhancement mode p-channel memory cell by applying a potential to a control gate of the p-channel memory cell of less than 1.0 Volt.
24. The method of claim 23, wherein applying a potential of less than 3.0 Volts across a floating gate oxide, wherein the floating gate oxide is less than 50

Angstroms, in order to add or remove a charge from a floating gate includes applying the potential for less than 20 microseconds.

25. The method of claim 23, wherein the method further includes refreshing at least one enhancement mode p-channel memory cell of the plurality of enhancement mode p-channel memory cells to renew a charge on the floating gate at 1.0 second intervals.

26. A method of operating a memory device having a plurality of enhancement mode p-channel memory cells comprising:

applying a potential of approximately 2.3 Volts across a floating gate oxide of at least one enhancement mode p-channel memory cell of the plurality of enhancement mode p-channel memory cells, wherein the floating gate oxide is approximately 23 Angstroms, in order to add or remove a charge from a floating gate; and

reading the enhancement mode p-channel memory cell by applying a potential to a control gate of the p-channel memory cell of less than 1.0 Volt.

27. The method of claim 26, wherein applying a potential of approximately 2.3 Volts across a floating gate oxide, wherein the floating gate oxide is approximately 23 Angstroms, in order to add or remove a charge from a floating gate includes applying the potential for less than 200 nanoseconds.

28. The method of claim 26, wherein the method further includes refreshing at least one enhancement mode p-channel memory cell of the plurality of enhancement mode p-channel memory cells to renew a charge on the floating gate at 1.0 second intervals.

29. A method for operating an enhancement mode p-channel memory cell, comprising:

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reading the enhancement mode p-channel memory cell by applying a potential of less than 1.0 Volt to a control gate of the enhancement mode p-channel memory cell having a dielectric layer between the control gate and a floating gate, the floating gate located on a floating oxide of less than 50 Angstroms.

30. The method of claim 29, further including refreshing the enhancement mode p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals.

31. A method for operating an enhancement mode p-channel memory cell, comprising:

reading the enhancement mode p-channel memory cell by applying a potential of less than 1.0 Volt to a control gate of the enhancement mode p-channel memory cell having a dielectric layer between the control gate and a floating gate, the floating gate located on a floating oxide of approximately 23 Angstroms.

32. The method of claim 31, further including refreshing the enhancement mode p-channel memory cell to renew a charge on the floating gate at 1.0 second intervals.